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THE IMPORTANCE OF PERCIEVED CONTROL: FACT OR FANTASY?

Lawrence C. Perlmuter
Richard A. Monty

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U. S. ARMY HUMAN ENGINEERING LABORATORY
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A number of experimental investigations on both humans and animals are described. The results of these experiments, when taken together, lead to the conclusion that under certain conditions offering a choice can lead to the perception that one has control, which in turn significantly increases performance relative to those who do not perceive control. The implications and potential implications of these findings are discussed.

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APPROVED:
JOHN D. WEISZ
Director
U. S. Army Human Engineering Laboratory

U. S. ARMY HUMAN ENGINEERING LABORATORY
Aberdeen Proving Ground, Maryland 21005

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The Importance of Perceived Control: Fact or Fantasy?

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The Importance of Perceived Control: Fact or Fantasy?

Experiments with both humans and animals indicate that the mere illusion of control significantly improves performance in a variety of situations

Life can be viewed as a struggle against randomness—an attempt to acquire the freedom to make choices or exercise control (Burgers 1975) —which allows for the introduction into one's life of a unique individualized order. Psychologists have long been concerned with the notion of control as it affects both human and animal behavior. In fact, the concept of control has become so infamous as a result of George Orwell's novel *1984* that many of us shudder when we think of its being brought under scientific scrutiny. But nothing so villainous is apparent in the current literature on control, where the term is used to refer to the continual attempt of the human or animal to deal effectively with and to manipulate his environment.

It is frequently speculated that increases in crime, race problems, and the like may be manifestations of the need to feel in control or, conversely, may result from diminished feelings of control. Take the case of the child failing in school, the product of a broken, poverty-stricken home, who might well be stereotyped as a juvenile delinquent. Some might argue that as a result of repeated failures to control or deal effectively with his environment, he commits a senseless crime to enhance his freedom to choose. In spite of the recognition of the importance of choice and control (see McKeachie's 1976 presidential address to the American Psychological Association, for example), until recently there has been little systematic, objective examination of choice and almost no quantification of the consequences of choice as it affects human behavior.

In this paper we shall examine the objective data that bear upon speculations about the role of control in the conduct of behavior. Can we demonstrate the usefulness of such concepts as perceived control (i.e. the feeling of being free to exercise control) and show that the presence or absence of perceived control affects behavior? Can we manipulate the feeling or perception of control and thereby gain a better understanding of its operation? We will provide a brief review of the fascinating convergence on the problem of control from research with both animal and human subjects, and we will then examine our own systematic investigations of how choice and control can be used to facilitate learning.

Lawrence C. Perlmuter received his Ph.D. in experimental psychology from Syracuse University in 1965 and subsequently was an assistant professor at Bowdoin College, from 1966 to 1972. He is currently an associate professor of psychology and Director of the Experimental Psychology Program at Virginia Polytechnic Institute and State University. His current research interests are in the areas of control, human learning, and memory. Richard A. Monty received his Ph.D. in experimental psychology from the University of Rochester in 1961. Since then he has conducted basic and applied research on a variety of topics, first at General Electric Co. and then at Cornell Aeronautical Laboratory. Since 1965 he has been a research psychologist and research coordinator at the Behavioral Research Directorate of the U.S. Army Human Engineering Laboratory. His research interests include the study of memory and eye movements. *The authors gratefully acknowledge the support of the Army Research Office, Durham, NC, and the U.S. Army Human Engineering Laboratory. This paper may be reproduced in full or in part for any purpose of the U.S. Government.* *Address: Dr. Perlmuter, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061*

The illusion of control

Seligman (1975) has shown that dogs revealed "helpless" behavior when exposed to conditions they could not control. His research involved one group of dogs that were allowed to escape electric shock by pressing a panel and a second group of dogs that had no control over the shock. Subsequently, both groups were placed in a dual-compartment shuttle box that presented shock in one compartment but also provided an escape route from shock to the other compartment. The dogs that previously had been unable to control the shock failed to learn the escape response, presumably because in their earlier experience they had learned that shock termination was independent of their response. Seligman concluded that the possibility of control over shock termination in early training determined whether the escape response was later even attempted.

Glass and Singer (1972) have looked at the problem of control from a somewhat different perspective. They were concerned with the reactions of individuals to loss of personal control and have suggested that the stress associated with an aversive event is reduced when the event is perceived as predictable or controllable. In one of their experiments, subjects were exposed to unpleasant noise. One group, which we will call the *perceived control group,* was given the opportunity to terminate the noise by pressing a button. However, they were encouraged not to do so because, they were told, their physiological adaptation to the noise was being measured. A second group was not provided with a button and thus could not assume control. The phys-

iological adaptation to the noise was the same for both groups.

After exposure to noise, both groups were given a set of puzzles to solve, several of which were insolvable. It was found that subjects who had been exposed to uncontrollable noise showed significantly lower tolerance levels, as indicated by fewer attempts at solving the puzzles. A second task, involving proofreading, also was performed more poorly by the group without control. The conclusion was that lack of control of the immediate environment led to feelings of helplessness and thus impaired functioning. It appears, then, that the development of control is intimately tied to, and dependent upon, the subject's perception of the situation. The mere opportunity to terminate the noise enabled the subject to develop the feeling of control. Lefcourt (1973) referred to this feeling or belief as the illusion of control.

A large body of data shows that the absence of control affects not only overt behavior but also covert physiological activity. Stotland and Blumenthal (1964), for example, have shown that humans who are made to feel they are in control tend to be less anxious than those who do not have this belief. In their study, the subjects were led to believe that a series of tests would be administered. Half the participants were given a choice of the order in which the tests were to be taken and the other half were not. Those given no choice showed increased sweating of the palms, a common indicant of anxiety, while those given a choice showed less increase in sweating. It was concluded that the absence of control led to the noted increase in anxiety.

Similarly, Weiss (1971) demonstrated that ulceration was more common and more extensive in rats subjected to electric shock over which they had no apparent control, and DeGood (1975), in a shock-avoidance experiment using college-age males, showed that merely allowing subjects to select the time of their rest periods between experimental sessions reduced systolic blood pressure more than did comparable experimenter-selected rest periods. The experimental evidence clearly points to the fact that the absence or, more important, the perceived absence of control is destructive to the organism.

Correlational data gathered clinically are also pertinent. In one study (Timmermans and Sternbach 1974), an examination was made of the factors associated with chronic pain in nonterminal disease. Factor analysis of pain and personality test data revealed that the feeling of helplessness was highly correlated with pain. In addition, the feeling of being out of control of one's life was often associated with attempts to manipulate and influence others. Unlike Seligman's dogs, which showed "helpless" behavior, the chronic pain patients attempted to exercise a form of control over others.

Three related questions can be posed at this point. First, does control enhance the effects of positive reinforcement? Second, does control assist the organism in improving performance when neither negative stimulation nor positive stimulation is present? Third, will the organism work in order to gain control? That is, can control per se serve as a reinforcer or incentive?

In response to the first question, current evidence suggests that control does serve to enhance the effectiveness of otherwise rewarding conditions. For example, Faircloth (1974) demonstrated that the effectiveness of pleasant electric stimulation of the brain was enhanced when rats controlled the onset of their own stimulation.

As to the second question, it was found that the benefits of choice are apparent in the absence of either positive or negative reward (Dru, Walker, and Walker 1975). Dru and his co-workers were concerned with recovery of the ability to discriminate visual patterns following surgical ablations of the striate cortex in rats. Behavioral measures included the number of trials necessary before the animal reached a certain level of performance as well as the number of discrimination errors committed while learning the task. Comparison between the performance of two groups is pertinent. Following the surgery, one group was carried through a patterned visual environment, while a second group was allowed free movement through identically patterned visual alleys. Briefly, it was found that self-produced locomotion was much more successful in facilitating the recovery of visual discrimination than was passive movement through the identical visual environment. The authors point to the critical role played by self-produced locomotion in facilitating visual recovery. Might it be that the effectiveness of the self-produced locomotion mediates the development of control and thereby enhances the recovery?

The evidence relevant to the third question, while indirect, suggests that the organism may work to gain control. Specifically, if an organism is given an opportunity to choose between receiving freely available rewards as opposed to rewards for which work must be performed, preference is shown for the latter. Experiments relevant to this question have been conducted with rats as well as with children from middle and low socioeconomic conditions (Singh 1970), and despite the variety of past experiences, the subjects—humans and rats alike—show a clear preference for work over so-called free-loading or unearned reward, unless it is very difficult to obtain the reward by working (Carder and Berkowitz 1970).

The representative studies, while rather diverse in purpose, when taken together strengthen the general assumption that allowing the subject either to exercise choice or to perceive the potential for control generally benefits performance in a wide variety of situations.

Choice as a variable in learning

Let us turn now to a series of related studies conducted in our laboratory that intensively and systematically investigated the role of choice. For the last several years, we have directed our efforts toward an attempt to determine how and why the perception of control influences human behavior and how that behavior can be both enhanced and/or disrupted. The focus of our research has been on enhancing learning through the relatively simple expedient of allowing subjects to exercise choice over a portion of the materials to be learned. We shall examine some experiments and briefly outline what our laboratory efforts have discovered to date.

To follow our line of research it is necessary to understand what is

meant by paired-associate learning, a task commonly utilized by psychologists to study learning and memory. In its simplest form a paired-associate learning task requires the subject to learn a list of word pairs. We call the word on the left the stimulus and the word on the right the response. Generally, the subjects are shown only a stimulus word and then are asked to recite the response word that is paired with it; afterward, they are shown the stimulus and the correct response together and subsequently move on to the next stimulus. It is obvious that the subject cannot give a correct response on his first exposure to the stimulus because he has not yet seen the required response. After each pair in the list has been shown, the procedure is repeated again and again until the subjects learn to correctly anticipate the response to each stimulus. In a sense, this procedure is analogous to the way in which a student may attempt by rote to acquire a vocabulary in a second language.

In order to introduce the element of choice, we modified the paired-associate task in the following way (Monty and Perlmuter 1975): the subjects in what we have called the *choice condition* were first shown a set of verbal materials consisting of the stimulus words presented on the left in the conventional manner, but with five "potential" response words listed on the right. We instructed the subjects to read aloud both the stimulus and response words and to choose which response word they wished to associate with each stimulus word. In this manner we gave them some control over the learning situation. This procedure was repeated with each stimulus until the subjects had constructed a list of twelve word pairs, which they then proceeded to memorize in the manner described above.

By contrast, in the *force condition* the subjects read aloud the stimulus and potential responses, but, following the reading, the experimenter announced which responses were to be learned, thereby designating the stimulus-response pairs for the subjects. In each case the responses chosen by the previous choice subject were assigned to a force subject, and thus yoked pairs of subjects were learning identical materials. As shown in Figure 1, choice subjects learned

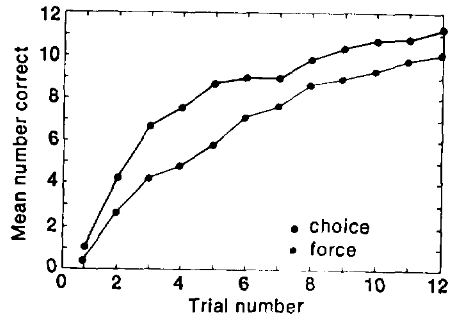

Figure 1. The mean number of correct responses per trial for the *choice group*, those who could choose the response words, was significantly higher than for the *force group*, those who were assigned the response words. (After Monty and Perlmuter 1975, exp. 3.)

more rapidly and became more proficient (reached a higher level) than did force subjects. (In every experiment, except where indicated, there were at least 20 subjects (male and female) in each group. Also, all differences reported hereafter are at least at the .05 level of confidence.) Allowing the subject to choose what is to be learned seemed to benefit performance.

Parenthetically, allowing subjects to choose the stimulus item from a set of alternatives benefited performance in a way analogous to that observed when subjects selected response items (Perlmuter and Monty 1973). In this experiment, five choices of stimuli for each response were arrayed vertically on the left side while the designated response was presented on the right. In both kinds of experiments (choice

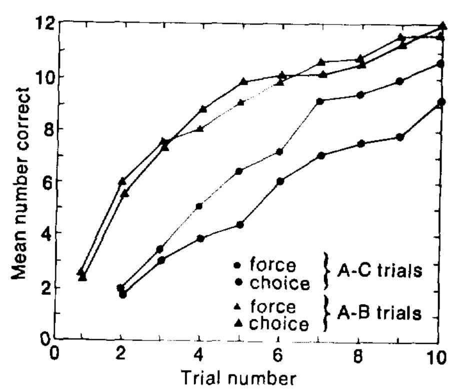

Figure 2. Subjects who had chosen the responses to be learned showed inferior performance when the responses were changed before learning was begun compared to *force* subjects (A-C trials). They also did not improve their performance in comparison to the *force group* when they were later permitted to learn their chosen responses (A-B trials). (After Perlmuter, Monty, and Cross 1974, exp. 1.)

of stimulus and choice of response word), it might be conjectured that the enhanced learning on the part of the choice subjects is attributable simply to idiosyncratic factors. For example, the choice subject may have had the benefit of certain mnemonic cues that aided in the formation or retrieval of the learned associations. In fact, this is precisely the conclusion we drew at one time, but as additional data are examined this contention will be found untenable.

What happens to subjects who are given the opportunity to exercise choice but subsequently must learn different responses from the ones they chose? We studied this by first giving the subjects the opportunity to choose their own responses and then requiring them to learn a list with the same stimulus words but with response words that had not existed originally as alternatives (Perlmuter, Monty, and Cross 1974). We found, as shown in Figure 2, that subjects not given the opportunity to choose learned faster than the subjects who had chosen responses but were given others in the actual task. To account for the inferior performance of the choice subjects, we assumed that when a subject exercised choice, motivation was enhanced as a consequence of perceived control. However, as a result of choosing, a potential for frustration was also established (Perlmuter et al. 1974). The abrogation of the subject's choice may be thought of as causing an increase in "reactance"—a threat to the freedom to choose that may cause the particular freedom to become more valuable and hence pursued and protected (Brehm 1966)—or frustration (e.g. Brown 1961), which in turn contributes to a further increase in the general motivational level of the organism. This excessive level of generalized motivation seems to have caused the deterioration in performance by the choice subjects. Finally, when the choice subjects were subsequently allowed to learn their chosen materials, they did not exhibit benefits attributable to choice relative to those who had not been given a chance to exercise choice.

Additional research revealed that the potential for frustration apparently has a time course that is different from, and independent of, the beneficial motivational increment that follows from the exercise of choice.

Table 1. Mean number of correct responses for groups that had varying amounts of choice of responses on 4 trials of a 12-item stimulus-response pair test. (N = 20 in each group.)

Group	Trials 1	2	3	4
Choice of all 12 items	4.80	6.80	7.70	8.90
Distributed choice of 6 items	4.40	5.05	6.35	6.90
Choice of first 3 items	4.75	6.30	7.65	7.95
Distributed choice of 3 items	4.15	5.40	6.90	7.70
Choice of last 3 items	2.90	4.85	6.40	6.80
No choice	3.40	4.90	5.95	7.15

Unlike the frustration following abrogation of the subject's choice immediately after its expression, when the abrogation is delayed 24 hours, the potential for frustration dissipates and the beneficial effects of choice show up (Monty and Perlmuter 1975, exp. 2). Although frustration has been studied in a variety of situations, relatively little information is available on its temporal course. Thus, the present data are somewhat novel, both in suggesting a distinction between frustration and the potential for frustration and in describing its temporal course.

We have assumed that when a subject is given an opportunity to choose, his general level of motivation increases and should improve performance not only with the materials shown but with other materials as well. To test this notion directly, we (Monty, Rosenberger, and Perlmuter 1973) used a paradigm similar to that discussed earlier. One group of subjects chose only the first three response items and were assigned the remaining nine stimulus-response pairs chosen by the other subjects. A second group also chose three response items, but they were distributed throughout the list of twelve items. A third group chose only the last three responses, a fourth group chose half of the items in a distributed fashion, a fifth group chose all twelve responses, and a sixth group was given no choice at all.

It is interesting to note (see Table 1) that when the first three responses were chosen, performance was almost as good as when all twelve responses were chosen. However, when the last three items were chosen, performance was as poor as when no items were chosen at all. When the three chosen items were scattered throughout the list, performance was at an intermediate level relative to the early and late choice conditions and not significantly different from either. These findings indicate that providing the learner with the perception of control at the commencement of the task facilitates performance maximally. Further, it should be noted that the learning of not only the chosen items but also the nonchosen items was benefited. After this experiment, we decided to determine whether the effects of choice might be demonstrable if we used more complex tasks with a decidedly less rote character. We also wondered whether the effects of choice found in our college students would similarly be found in young children.

In pursuit of the answers to these two questions, White (1974) employed the basic choice/force procedure and adapted a standardized reading comprehension test, which she administered to fifth-grade children. Some were given the opportunity to choose from a list of titles the stories to be read during the test, while other children either were permitted to choose only some of their stories or were given no choice at all. After reading the appropriate stories, each subject was asked five multiple-choice questions. The results, shown in Table 2, indicate that choice of even one of the four stories elevated performance on the reading comprehension test to equal that found when all of the stories were chosen by the subjects.

The results from the reading comprehension task are totally consistent with the paired-associate task and may provide a practical demonstration of how choice can be employed in the classroom to improve students' motivation and hence performance. Further, these experiments seriously undermine competing explanations that favor associative idiosyncratic factors alluded to earlier and, more important, implicate perceptual factors that apparently influence the development of control.

Table 2. Mean number of correct responses on the reading comprehension test for four groups of subjects with varying choice (C) and force (F) conditions. (N = 12 in each group.)

Group*	Test 1	2	3	4
CCCC	3.6	3.6	3.3	3.7
CCCF	3.1	3.3	3.3	3.3
FFFC	3.7	3.6	2.8	3.2
FFFF	2.0	2.3	2.1	2.3

*CCCC indicates that this group of subjects chose all 4 of the stories they were to read; CCCF subjects chose the first 3 and were assigned the fourth; etc. Reading test 1 was selected from the final set of titles to which the subjects were exposed; reading test 2 was selected from the penultimate set of titles; etc.

Other aspects of choice

It is axiomatic that people believe they enjoy freedom (Steiner 1970). The word *believe* is critical to this presumption since it modulates the illusory role of freedom which in turn affects motivation. This presumed network led us to test the hypothesis that the individual's perception of control, which is presumably dependent upon his belief about the amount of freedom available to him in a particular situation, will determine whether choice has positive, negative, or neutral consequences.

The important thing to recognize here is that, despite the fact that the act of

choosing is common in all cases, we are suggesting that only when the subject *perceives* control will motivation be enhanced. The act of choosing per se is neither sufficient nor critical to the development of control.

Let us consider the following example. If an individual is given the opportunity to choose between a sterling silver pencil or a gold-plated one, assuming that these represent similarly attractive alternatives, he will, after some pondering, reject one and select the other. Theoretically, the individual should in this situation experience a feeling of control and evince an increase in generalized motivation. By contrast, if he is given the choice between a sterling silver pencil and a wooden one, assuming that these represent grossly unequal alternatives, the decision time will be relatively brief and the wooden pencil quickly rejected. Theoretically, in this case the perception of control over the factors that determine his choice should be correspondingly low, since the choice is constrained. Finally, there is also the possibility that for reasons of his own, our chooser will select the wooden pencil.

To test these ideas, we set up an experiment similar to those previously described. Subjects chose response words for stimulus-response pairs (Savage and Perlmuter 1976), but each stimulus word was presented with only two potential response items, as contrasted with five in the previous experiments. The subjects were tested in groups of 5–20, and all the choice materials were presented in specially prepared booklets that contained study and test sheets as well. Following the choice procedure, subjects studied the twelve stimulus-response word pairs and were then tested for retention of the appropriate responses when presented with the stimulus items. Thus, the experiment was made up of three parts: the choice procedure, during which the subjects circled the desired response words; study trials, during which the subjects memorized the stimulus words and the correct responses; and test trials, during which the subjects were required to recall and record the appropriate responses on presentation of the stimulus words.

One group of subjects, designated as HH (High–High), chose their response words from pairs of alternatives that were high in meaningfulness (familiarity), as defined by Taylor and Kimble (1967). For a second choice group, HL (High–Low), each pair of responses was composed of one high M (meaningfulness) and one low M word. Examples of the response pairs for the HH group are *river* and *tulip* and for the HL group, *river* and *farod.* Both groups received identical stimulus words of intermediate M level. The performance measure was the mean percentage of correct responses recalled on each trial. The results, shown in Table 3, reveal that subjects who chose from similar alternatives (HH) performed better than subjects who chose only the high M responses from dissimilar alternatives (HL). Simply stated, subjects who chose alternative *A* in the presence of a similar alternative *A′* learned better than those who chose the identical alternative, *A*, in the presence of a dissimilar alternative, *B*. The results offer strong support for the notions that performance is enhanced directly by the degree of perceived control and that the presence of an undesirable (low M) alternative decreases the perception of control.

Table 3. The mean percent of correct responses on 3 trials for the group who chose response words from similarly meaningful alternatives (HH) was higher than for the group who chose response words from dissimilar alternatives (HL). (N = 20 in each group.)

	Trials		
Groups	*1*	*2*	*3*
HH	43	72	88
HL	28	52	64

In this experiment, the unusual third outcome—as in the idiosyncratic choice of the wooden pencil—also occurred. In the HL condition, not all the subjects chose high M alternatives exclusively. In fact, about 35% of the subjects chose one or more low M words. The performance of these subjects was separately evaluated and fell closer to the HH than to the HL group, although it was not significantly different from either (mean percent correct of 44, 68, and 77 on trials 1–3, respectively). From the scores of this somewhat maverick group it would have to be argued that, in contrast to the HL group, the mere fact of choice resulted in the perception of control, and this perception resulted in a slight improvement in performance.

The following conclusions can be drawn from this experiment. First, the effectiveness of choice is largely determined by whether the choice is between similar alternatives or not. Second, the act of choosing is insufficient for the development of the feeling of control, and in fact, it is the character of the nonchosen element that determines the consequence of choice. These results are in essential accord with the analysis of the choice situation suggested by Mills, in Harvey and Johnston (1973).

Still to be answered is the question of why some subjects chose one or more low M (unfamiliar) words. The answer may be explainable by the same mechanism that causes subjects to prefer earned rewards over free ones. That is, we might speculate that some subjects strive more than others to develop the perception of control.

Finally, although we have discussed the force situation relatively little, in passing it need be noted that perceptual factors are also influential when subjects are given no opportunity to choose (Savage and Perlmuter 1976). That is, being forced to accept a low M alternative when both of these are similar is not as destructive to performance as is being forced to learn the identical low M alternative in the presence of the more desirable high M alternative. Apparently, both servitude and freedom exist in degrees, and thus Shakespeare's comment in *Taming of the Shrew* that "there's small choice in rotten apples" requires further commentary.

Let's turn now to another aspect of the perception of control, investigated by Bailey (1975). In the research discussed thus far, the subjects have served as the direct beneficiary of their own choice. Is this personal beneficiary relationship critical to the development of control or is performance facilitated when a *hypothetical other* serves as the recipient of choice? Simply stated, is choice for another similar to choice for one's self? That the freedom to choose is intrinsically motivating has been amply demonstrated. Further, we

have seen that people tend to show increased satisfaction if they are permitted some degree of choice over their own situations. What benchmark do people use to assess the amount of freedom they enjoy?

To answer these questions college students were asked if they were willing to choose responses that another (absent) person would learn. After indicating their willingness to do so, they were shown a series of twelve stimuli, each accompanied by five responses. They were then given an experimenter-constructed list to learn. A control group was presented with all the responses but was offered no opportunity to choose.

The results revealed that choosing for another person produced a reliably higher level of learning compared to the control group. The chooser's belief about freedom is apparently enhanced by simply permitting control over a nonexistent other. Overtly indicating willingness to choose for another was an important determinant of enhanced performance. Thus it seems reasonable to assume that one way of evaluating the amount of freedom you enjoy is by comparing it with the amount of freedom you believe others enjoy. Obviously, if you believe that others enjoy more freedom than you do, or perhaps even as much freedom as you have, this could serve to reduce the perception of your own freedom—i.e. the possibility for control. Hence opportunities that serve to increase the difference in the amount of freedom you have compared to that of others should be satisfying and should thereby increase motivation.

Large service industries that deal with the public (airlines, motels, etc.) often give their customers the opportunity to evaluate the services they provide. Self-addressed cards are left in motel rooms, and airlines from time to time distribute questionnaires asking for evaluation of the services rendered. The collection of this information may provide important feedback to management for effecting policy changes, but we believe that such surveys also serve another, perhaps even more important, function. They provide the consumer with the belief that "somebody cares what I think." "Even though there is relatively little I can accomplish by filling out the card, I feel better as a result of doing it." That is, being given the opportunity to express personal feelings "perceptually" enhances a person's freedom to control.

These ideas animated the second portion of Bailey's experiment. Subjects were told prior to the start of the experiment that their learning task had been previously established—that is, they would be required to learn a prescribed set of stimulus-response pairs. Following this, they were presented with 12 stimuli, each with 5 response alternatives. Their task was to indicate to the experimenter which responses they would have chosen if they had had the opportunity. We labeled this the *hypothetical choice* condition. As in the previous condition, the experimenter assigned responses from the five alternatives presented, but none were the responses that had been elected by these subjects. Once again, in comparison with the force group (described above), even the *hypothetical choice* situation apparently provided the subjects with an enhanced perception of freedom, and they learned to a higher level than those not provided with the opportunity to choose. Thus, even in this relatively contrived laboratory situation, beliefs about freedom have powerful effects on behavior.

Applications and implications

The research we have described indicates that the antecedents as well as the consequences of choice can be objectively evaluated, and we have offered evidence that both theoretical and practical benefits may be realized in the pursuit of this rather ubiquitous variable. In short, the evidence leads us to the conclusion that the presumed importance of the need to perceive control is indeed fact, not fantasy, and that it is possible to manipulate this feeling in laboratory settings in order to gain a better understanding of how it can both facilitate and disrupt performance.

Although there are obviously some practical ideas here for use in the classroom, we hasten to point out that in an area as complex as this it is simpler to misapply these principles than to use them prudently, and misapplication could be destructive. For example, it has been reported widely in the daily papers that the 1960s brought about changes in the educational system aimed at developing teaching methods that would be more relevant to the students' daily lives. It is now recognized that those changes have been partly the cause of deficiencies in the students' basic skills of reading and writing. It was assumed that students knew what they needed, but they often avoided writing and reading courses. Clearly, this new "freedom" to choose was a misapplication of the principle of choice. The students were probably happier and more highly motivated, but their energies were expended in the wrong directions. Similarly, Rotter (1966) has pointed out that there are considerable individual differences in the perception of control, which would, of course, have to be taken into account in any applied context.

While our research to date has been limited to only one aspect of behavior, namely enhancing learning, it is reasonable to speculate that providing choice in other contexts might also lead to improved performance. Mahoney (1974), for example, has discussed the rapidly growing interest in choice and control even in such nonmentalistic areas as behavior modification, while social psychologists are investigating the degree to which individuals attribute freedom and responsibility to themselves and to those with whom they interact (Harvey and Smith 1977). Still others have looked at how the increased opportunity for choice may reverse or possibly prevent some of the negative consequences of aging (Langer and Rodin 1976). Furthermore, since we believe that behavior is guided in part by the need to increase the opportunities for freedom, it may be that much of the behavior that we observe and attribute to the service of certain needs or causes may in fact be better understood in terms of increased opportunities for control.

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Commander
USA Materiel Development & Readiness Command
ATTN: DRCDMD-ST (Mr. Klein)
5001 Eisenhower Avenue
Alexandria, VA 22333

Commander (2)
USA Materiel Development & Readiness Command
ATTN: DRXAM-TL
5001 Eisenhower Avenue
Alexandria, VA 22333

HQ DA (SGRD-EBD)
Washington, DC 20314

Director
Walter Reed Army Institute of Research
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ATTN: Neuropsychiatry Division
Washington, DC 20012

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Washington, DC 20012

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Washington, DC 20310

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Commander (4)
USA Research Institute
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USA Operational Test & Eval Agency
ATTN: Test Design Div (Mr. Adrian DuBuisson)
5600 Columbia Pike
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Building 2423
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Suny at Brockport
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404 E. Lancaster Avenue
Wayne, PA 19087

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Boeing-Vertol
Org 7930-Main Stop 30-36
P.O. Box 16858
Philadelphia, PA 19142

Dr. Loren Smith (2)
Department of Psychology
University of Delaware
Newark, DE 19711

Dr. Richard A. Wunderlich
Psychology Department
Catholic University
Washington, DC 20017

Dr. Thomas I. Myers
9842 Singleton Court
Bethesda, MD 20034

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400 7th Street, S.W.
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Department of Psychology
University of Maryland
College Park, MD 20742

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Psychology Department
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Norfolk, VA 23508

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Univ Prof of Psychology
Old Dominion University
Norfolk, VA 23508

Dr. Lawrence C. Perlmuter
Psychology Department
Virginia Polytechnic Inst & State University
Blacksburg, VA 24061

Dr. Richard G. Pearson
Dept of Ind Engr, Box 5518
North Carolina State University
Raleigh, NC 27607

Dr. Lester A. Lefton
Department of Psychology
University of South Carolina
Columbia, SC 29208

Sprint Human Factors MP 537
Martin Company
Orlando, FL 32805

Dr. John L. Fletcher
Department of Psychology
Memphis State University
Memphis, TN 38111

Dr. Bill R. Brown
Perf. Research Laboratory
University of Louisville
Louisville, KY 40208

Dr. Michael Loeb
Department of Psychology
University of Louisville
Louisville, KY 40208

Dr. Arthur S. Kamlet
Bell Laboratories
6200 East Broad Street
Columbus, OH 43213

Dr. Alexis M. Anikeeff
Department of Psychology
University of Akron
Akron, OH 44304

Ms. Jane Kline
5429 Emmons Street
Fairborn, OH 45324

Dr. Malcolm L. Ritchie
Department of Engineering
Wright State University
Dayton, OH 45431

Mr. A.J. Arnold
HF Engineer, Safety Group
GM Design Staff, GM Tech Center
Warren, MI 48090

Dr. Herbert J. Bauer
GS Rsch Labs, GM Tech Center
Warren, MI 48090

Dr. Robert Pachella
Human Performance Center
330 Packard Road
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Computer Science Department
Michigan State University
East Lansing, MI 48823

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Department of Community Medicine
327 East Fee Hall
Michigan State University
East Lansing, MI 48824

Dr. Lloyd A. Avant
Department of Psychology
Iowa State University
Ames, IA 50010

Dr. Paul M. Muchinsky
Department of Psychology
Iowa State University
Old Botany Hall
Ames, IA 50010

Dr. Leonard Uhr
Computer Sciences Department
University of Wisconsin
1210 Dayton Street
Madison, WI 53706

Dr. Corwin A. Bennett
Ind. Engineering Department
Kansas State University
Manhattan, KS 66502

Dr. Sheldon F. Hendricks
Department of Psychology
University of Nebraska at Omaha
Omaha, NB 68102

Dr. Selby H. Evans
Inst. for the Study of Cognitive Sys.
Texas Christian University
Fort Worth, TX 76129

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Department of Psychology
University of Houston
Houston, TX 77004

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Ctr of Biotechnology & Human Performance
Texas Tech University
Lubbock, TX 79409

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Albuquerque, NM 87115

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Department of Psychology
University of Nevada
Las Vegas, NV 89109

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Inst. of Aerospace Safety & Management
University of Southern California
Los Angeles, CA 90007

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Safety & Human Factors Engineering
Rohr Industries, Inc.
13213 Mango Drive
Del Mar, CA 92014

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MAN Factors Inc.
4433 Convoy Street, Suite D
San Diego, CA 92111

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Hughes Ground Systems
Building 606, MS K215
Fullerton, CA 92634

Dr. Robert R. Mackie
Human Factors Research, Inc.
Santa Barbara Research Park
6780 Cortona Drive
Goleta, CA 93017

Dr. Charles Abrams
Human Factors Research, Inc.
Santa Barbara Research Park
6780 Cortona Drive
Goleta, CA 93017

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Dr. William Harris
Human Factors Research, Inc.
6780 Cortona Drive
Goleta, CA 93017

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Org. 62-05, Building 151
LMSC, P.O. Box 504
Sunnyvale, CA 94088

Dr. Mary Meikle
Kresge Hearing Research Laboratory
3181 S.W. Sam Jackson Park Road
Portland, OR 97201

Dr. Jack Vernon
Kresge Hearing Research Laboratory
3181 S.W. Sam Jackson Park Road
Portland, OR 97201

Prof Ronald H. Hopkins
Department of Psychology
Washington State University
Pullman, WA 99163